

the room produced shortness of breath and increased rapidity of heart action. During this time she was occasionally carried up and down stairs, and some months later was strong enough to take automobile drives. After four or five months of treatment her heart had sufficiently recovered for her to walk up and down stairs once a day. She has steadily improved in strength, so that at the present time she leads practically a normal life and presents the appearance of being in perfect health.

The physical signs so far as the lungs are concerned persist. The right diaphragm is in the same position as above described. An examination of the heart still shows a systolic murmur, which is loudest at the apex. This murmur, however, is now soft and very much diminished in intensity, and in the range of its transimission. It is my belief that at the present time the shortness of breath, still experienced after taking long walks, is due rather to the diminished lung capacity of the right lung than to any cardiac weakness.

The patient has not had a roentgen-ray treatment for nearly a year, and for more than a year there has not been any evidence of hyperthyroidism.

## REPORT OF A CASE SHOWING THE RELATION BETWEEN OCCUPATION AND A CERTAIN CASE OF BRONCHIAL ASTHMA.

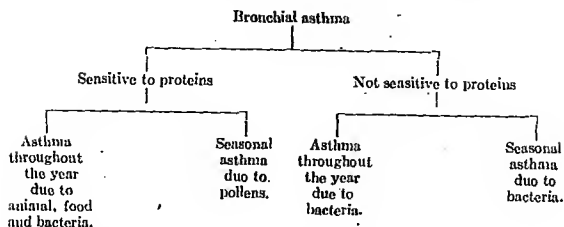
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It will be recalled that our present conception of bronchial asthma differs greatly from that previously held. We now know that by means of the cutaneous or skin test cases of bronchial asthma that are sensitive<sup>1</sup> to proteins may be separated from the non-sensitive type. The first class, or true bronchial asthma, is separate and distinct from the second, non-sensitive type, the so-called asthmatic bronchitis.

The following classification of Walker<sup>2</sup> presents this in an interesting way:

<sup>1</sup> For studies showing possible relationship of bronchial asthma to anaphylaxis and to the anisus see: Friedberger and Moreschi: *Berl. klin. Wehnschr.*, 1912, xlix, 741. Oehme: *Arch. Pharm.*, 1913, lxxii, 76. Baehr and Pick: *Arch. f. exper. Path. u. Pharm.*, 1913, lxxiv, 41, 65. Meltzer: *Jour. Am. Med. Assn.*, 1919, lv, 1021; *Tr. Assn. Am. Phys.*, 1919, xxv, 66. Eustis: *Am. Jour. Med. Sc.*, 1912, cxliii, 862; *New Orleans Med. and Surg. Jour.*, 1914, lxxi, 739; 1999, lxi, 98. Eppinger and Gutman: *Ztschr. f. klin. Med.*, 1913, lxxviii, 411. Dole and Laidlaw: *Jour. Physiol.*, 1919, xli, 318; 1911, xliii, 182. Pfeiffer: *Ztschr. f. Immunitätsforsch. u. exper. Therap.*, 1911, xi, 133. Biedl and Kraus: *Ztschr. f. Immunitätsforsch. u. exper. Therap.*, 1912, xv, 447. Schittenhelm and Weichard: *München. med. Wehnschr.*, 1912, lxx, 67. Aronson: *Berl. klin. Wehnschr.*, 1912, xlix, 642.

<sup>2</sup> *Bronchial Asthma*, *The Oxford Medicine*, 1919, ii, 128.



The following are the essential points, in the history of the case of true or sensitive bronchial asthma, that I wish to report.

Mr. Z., aged forty-four years, a baker for twenty-six years, has suffered continually from chronic bronchial asthma for a period of fourteen years. About every second or fourth week he develops an acute attack. The physical examination shows some emphysema, otherwise it is negative. Laboratory examination of the urine, blood and feces reveal nothing of importance.

The patient was tested with the following proteins:

Almond	Egg, whole	Perch
Asparagus	Egg yolk	Pike
Banana	Fig	Pineapple
Barley	Ginger	Plum
Bean	Goat meat	Pork
Beef	Goose	Potato
Beet	Grapefruit	Radish
Blackberry	Guinea-hen	Raspberry
Bluefish	Haddock	Rhubarb
Brazil nut	Herring	Rice
Buckwheat	Lactalbumin	Rye
Cabbage	Lamb	Salmon
Cantaloupe	Lentil	Sole
Carrot	Lettuce	Spinach
Casein	Limn bean	Squab
Cauliflower	Lobster	Squash
Celery	Mackerel	Strawberry
Cheese	Milk (breast)	Sweet potato
Chestnut	Milk (cow)	Tea
Chicken	Milk (goat)	Tomato
Clam	Mustard	Turkey
Cocoa	Oat	Turkey
Codfish	Onion	Vent
Coffee	Orange	Walnut (English)
Corn	Oyster	Wheat (whole)
Crab	Parsnip	Wheat gliadin
Cucumber	Pea	Wheat globulin
Duck	Peach	Wheat glutenin
Egg-plant	Peanut	Wheat proteose
Egg-white	Pear	Wheat leucosin
	Pecan	
Beef serum	Chicken feathers	Mouse hair
Horse serum	Dog hair	Rabbit hair
Tobacco	Goose feathers	Sheep wool
Cat hair	Horse dander	

Staphylococcus pyogenes aureus  
Staphylococcus pyogenes albus  
Staphylococcus pyogenes citreus  
Micrococcus tetragenus  
Micrococcus catarrhalis

Streptococcus pyogenes 3-valent  
Streptococcus pyogenes viridans  
Streptococcus pyogenes hemolyticus  
Streptococcus alpha hemolyticus  
Pneumococcus 4-valent  
Diphtheroid

On carrying out the cutaneous tests it was found that the only proteins he was sensitive to were *rye* and *wheat* and *wheat globulin*. Wheat leukosin, wheat proteose, wheat glutenin and wheat gliadin were all negative. The interesting fact is shown that this person is sensitive only to proteins of the rye and to wheat globulin, the other proteins of wheat not causing any reaction. We therefore have a case of a baker sensitive to the proteins of rye and wheat, proteins with which one may say he spends a great deal of time.

Cases showing the relation between occupation and bronchial asthma are not common. The following quotation from Walker<sup>3</sup> is of interest in this connection:

"Occupation may have a direct bearing on the cause of bronchial asthma, and occupation frequently explains the development of sensitization after the age of forty. This occurrence, however, is not usual. Of 11 patients who became sensitive to proteins after the age of forty, 4 were bakers and sensitive to wheat protein, 1 was a hostler and sensitive to horse dandruff protein and 1 was a sifter of green coffee beans and was sensitive to green coffee protein, therefore in over half of these cases occupation was responsible for the cause of the asthma. Three unusual instances where occupation bore a direct relationship to the cause of the asthma are sufficiently interesting to mention. A man whose work consisted of sifting green coffee beans became sensitized to the proteins in the green husks and had asthma from the protein. Another man whose work was that of a jewel polisher became sensitive to the proteins in the dust from boxwood with which he polished the jewels, and a second man, working in the same room, became sensitive to the dust from the orangewood with which he polished jewels. The man sensitized to the boxwood was not sensitive to the orangewood, and *vice versa*."

As regards the treatment of these cases one can proceed in anyone of three ways: (1) The offending protein must be eliminated, that is, it must not be taken in the diet and the occupation must be changed so that the offending protein will not be inhaled. (2) If the protein is only offending on account of the ingestion of the same it can still be taken in the diet, but it must be only used after it has been subjected to a high heat. For example, it is known that patients who are sensitive to potato protein are usually able to eat baked potato, although boiled potato causes symptoms. Raw milk may cause symptoms in patients sensitive to milk protein, but boiled milk will not. Shredded-wheat biscuits and thin slices of bread well toasted on both sides may be eaten by patients sensitive to wheat protein, while the unheated wheat preparation would cause symptoms of ingestion. The explanation for these facts must be that the high temperature that the foods are subjected to destroys the anaphylactic properties of the protein contained in the same.

<sup>3</sup> *Bronchial Asthma*, The Oxford Medicine, 1919, ii, 128.

(3) Consists in treating or desensitizing the patient with those proteins that he has been found to be sensitive to by the skin or cutaneous test. One can give subcutaneous injections of the offending protein, but the procedure is difficult and not as satisfactory as the method of feeding the proteins. In this method gradually increasing doses of the offending proteins are fed until large amounts are taken without the production of symptoms. By this method of desensitization, Schofield,<sup>4</sup> Rich,<sup>5</sup> Schloss,<sup>6</sup> Talbot,<sup>7</sup> and Grover<sup>8</sup> have had successful results in children. Walker<sup>9</sup> states that he has tried this method of treatment with adults, but none have been conscientious enough to take the protein per schedule for any length of time.

## EXPERIMENTAL CHRONIC SUPPURATIVE ARTHRITIS.

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ARTHRITIS has been a subject for experimentation over a period of years, and during this time the effect on the joints by many organisms has been studied. The green streptococci have probably been most extensively used, and have produced the most interesting findings, with not only local joint changes, but, in addition, alterations in the heart, arteries and kidneys, constituting a combination of lesions which simulated not a little those observed in the complex known as acute rheumatic fever.

The character of the joint reaction caused by the *Streptococcus viridans* is of a comparatively mild type, subsiding usually in a relatively short space of time, with a variable grade of disability of the joint. Of the other organisms, the one that bears the most interest is the hemolytic streptococcus, and I wish here to describe some observations made on rabbits treated with a member of this group.

The single strain of streptococcus used in these experiments was isolated on January 8, 1919, from the pus of an abscess in the sub-maxillary gland in a psychopathic patient who died eight days later of pneumonia. Permission for an autopsy was not granted. It may be stated, however, that during life the patient presented no evidence of bone or joint involvement. The organism in question was

<sup>4</sup> *Lancet*, 1903, i, 716.

<sup>5</sup> *Jour. Michigan State Med. Soc.*, 1914, xiii, 649.

<sup>6</sup> *Am. Jour. Dis. Children*, 1912, iii, 341.

<sup>7</sup> *Boston Med. and Surg. Jour.*, 1916, clxxv, 191.

<sup>8</sup> Reported by Walker (*loc. cit.*).

<sup>9</sup> *Loc. cit.*